

DRAGON

USER



August 1988

The independent Dragon magazine

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Editorial

HERE we are! Just got the new office started out and holiday time looms ahead as the time starts to melt away... Internally, indeed, as I am moving house at the end of the week. However, thanks to Arnel and the committee it shouldn't affect this August magazine. Fingers crossed, toes crossed.

I need a holiday.

By the way, owing to a paper and printer at Swindon a few weeks ago, some people who should have done, won't have had their June renewal invoices yet. We have sent a postcard out, and we're working on it.

By coincidence, Roger Merrick's report on his experience with Gordon 'test a hard disk system' arrived in time to prove what Paul Gault is saying in his new column. The power is there for the Dragon if you look for it.

Problems with hard disk fragility are universal and not confined to the Dragon. Ask anybody with a hard disk, and watch their faces!

And new pencils predict that digital tape technology will lead data storage back to cassette in the longer term.

Newstead contains an editorial note for reviewers in reply to those who want the secrets of how and fortune.

And the Golden Rule? Meet the deadline — bye!

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How to subscribe

The quality of the material we put before you in Dragon over each month will be a very pleasant and enjoyable surprise if you do have with you Dragon. The Dragon computer will inform you of the market with a powerful version of Basic, but with very good comments.

Articles which are submitted to Dragon for publication should not be more than 1000 words long. All submissions should be typed double spaced on one side of the paper, with a margin of 10mm. They should be accompanied by a copy of the Dragon.

We cannot guarantee to return any submitted article in progress, so please keep a copy in your file. We will pay you 10p per word for the first 1000 words of the article.

Letters

This is your chance to air your views — within our rules, commitments and constraints to Letters Page, Dragon User, 48 Alexandra Road, Hounslow, Middlesex TW3 4EP

Canoe in trouble

REPERFENCE *Canoe Dragon User July 1988*

May I appear for help through your columns with the above program which was quite a bit to fiddle with in the first place?

Unfortunately the listing was incomplete at address 51480H, there is a JMP 5148704 instruction but there is no routine at 5148704 in view of the fact that no comments appeared in later issues of DU! I don't presume that I was the only one dumb enough to type in such a mess of bits, code, even if it did take nearly two years to get round to it!

Recent letters to Mr. Croucher requesting a listing of the missing code have failed to produce any response.

However the article offered to supply tapes of the program. I subsequently purchased such tapes and would send this to memory dump running from 5148704 to 51489FF. I would be extremely grateful. Postage would naturally be refunded.

In closing may I make the observation that I find it disturbing that a contributor should apparently take such a cynical attitude when asked to correct an error. Dragon users would be justifiably annoyed at purchasing a faulty program from a reputable house.

To David
41 Haddington Road
Wickhamstead
Dorset DT1 5LA

YES indeed and no indeed you were certainly not the only person to type it in, as I remember a protracted correspondence with several people somewhat after Censor appeared. I seem to recall that the correspondence had a happy ending, and then Mr. Croucher played no part in it. Apart from that, my memory is shrouded in mist and a cannot for the life of me explain why this was whatsoever odd, or why no apology appeared in DU!

There may have been something in the nature of his having not equally written a matter of that sort in, and the program running

Every month we will be shelling out a game or two, courtesy of our supplier, to the reader's who send the most interesting or entertaining letters. So send us your hints and your opinions, send us your bits, scores and suggestions. Send us your best Dragon suggestions. What if you think we are, *naughty readers?*



DOS complexities raised

I would like to comment on some of the issues raised by Alan Smith in the May Dragon User.

Firstly as SuperDOS 3.0 is planned to be DragonDOS 4.0, I should point the reader towards having a copy of the directory he made it at by no means "easy". Whenever a sector on track 20 is written, it is copied to track 10 where the sector sits. At this point, if directory corruption is also copied, usually before correct action can be taken. I would contend that user make full backup (and recovery) would be preferable otherwise the second copy of the directory is lost.

Then SuperDOS 3.0 does not operate as described when using CLOSE, as the Dragon DOS text is not present. The code for this, and a method of

single file CLOSE operation, was a variety DragonDOS 3.0, red one (DU May 88). Also, the "directory corruption" mentioned at the end of the article is either introduced into some of the Dragon DOS tapes, or occurred. I am sure a re-format or disk test with PFMAC II is compulsory. DR, undamaged, is not a replacement for DR.

Finally with a little effort, it is possible to provide a DragonDOS-compatible DOS-4 currently in such a DOS without the errors and with the features Alan Smith would like. DOS-4 equivalent, selective peripheral directory single file close, etc. and stay well within DU. The remaining space can then be used for additional peripheral programs, compatibility, named and numbered data, etc.)

Philip G. Scott, 4 Davenport Drive, Pinner, Middlesex, Uxbridge, Middx, Ux.

Tandy response

On your letters page you said you would like to know how Dragon and Tandy owners would feel about you extending your repertoire into Tandy country. I can assure you that most owners would be very pleased. I think that if Dragon and Tandy owners got together a lot more both machines will be in use a lot longer than they would trying to carry on in isolation. It would also help if software houses catered for both machines a lot more.

J. Challenor
81 Kynle Hall
London SW11 6SS

RAM on rampage

FOR some while now my Dragon 32 has had an annoying problem. The problem was lack of usable memory. When I bought my 32ewriter I could not find the Denac — there was no sufficient space. I phoned Gordon Tait who suggested that I PRINT MEM Test 100 and up to 100 MB (by the way, a test of 100 MB occurred. I learned on with the test for a long time).

Someone at work suggested that I could be a bit more down and get my mate who is a prototype programmer to remove the software which lay down in an issue of DU and replace them with updates. He took several lunch hours over the job, but in the end I had all my data in the original position. He then backed up the 100 MB and told him where the backup went. I do the backup.

I took the latest tapes plugged him and turned it on. Sure enough, it worked, but I still had only 100 MB of memory. I wrote a new test and told the correct position in the original position. I told him that the backup went up there and the machine just showed it. I can't. At about the third time the end I plugged the new test in and PRINTED MEM and it showed behind up down 25,257. I

satisfactorily with a minor bit of tweaking which somebody else worked out or saw at once.

There is nothing in the file. It is a mystery. Can anybody out there help Mr. Scott?

DU expects authors to sort out any bugs which arise after publication, and in the rare case where we have had a seriously bugged program or very bewildered readers as a result of something we have published, the authors have needed in and sorted out. Unfortunately, in the case of a program which was published two years ago, we have added difficulties. There may be a perfectly lo-

gical explanation for Mr. Croucher's silence. He may be on an again to a new college or changing round the world, he too may have lost and forgotten his own program, or he may be so haunted by the terrible consequences of the missing routine that he has become a hopeless case.

On the other hand if he or one of his mates is reading this, could you drop me a line to let the know? We aren't going to send the Dragon book bugs round to take the bug back — seriously.

theadline my book, and then it added the correct figure for a 238 Dragon (The Basic takes up the remaining 85).

I have enjoyed Dragon Clear for some years after obtaining many useful tips from it and I am very pleased to be able to pass it on to someone who may be in the same boat as I was. I was given — in the course of my problems — an issue of *Good* & two *semio* (good) but if anyone can make use of it would be pleased to pass it on, for the cost of the postage. Finally, has any one out there in Dragon land got the book inside the Dragon which may be lying around unused? I would like date in as change to Peter Mousher.

Joe Roberts, 58th YZ
30 Albany Rd

Guildford
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SA2 9TH

Disc hangups

I have been a regular reader of Dragon User for about four years now and have seen the quality of programs and articles improve greatly. I have a problem I need only look in past issues and usually find the answer so I would like to thank OU and of course all the companies that have continued to support the Dragon. I have found all the articles in Dragon ODS very helpful, particularly Pam Olney's *Disc Rescue* which proved me when pulling my hair out.

After having a disc hang up and wipe everything I decided to purchase a second hand one along with the drive since a number of discs with some very good software, but one also contained files which I didn't want so I got about deleting them without inducing the file type. The result was a corrupted disc.

I then tried saving some of my own programs and got nothing but CC, RWFP and IV errors. Come back to error I gave my file *Reformat* pulled out too much that I found the *Disc Rescue* program and was able to recover all but one program.

I think I have found some errors in the ODS saved as they published in your magazine, which other Dragon ODS

users should know about. If *DISPATCH* is used to control media the computer sometimes hangs up. If a file is RW, I used a save file of the same name in *save*, I sometimes get a WP error. Once someone the computer hung up and corrupted the disc. On some discs the first file in the directory is corrupted when loaded.

Finally one of my new discs developed a CD error on one file and the RW error on another where a file which was corrupted loaded straight. All this happened in the space of five minutes when I left the room and returned.

Desmond King
35 Parkham Drive
Ormskirk
B71 3TH

RAE course

HENDON College runs a very successful course for the Radio Amateurs Examination (RCE and Grade 705).

Four teachers are in residence on the course, which is held on Tuesdays from 10.30 to 12.30 at Hendon College, Corner Millard, Grinstead Park, Colindale, London NW9 6SL. The fees are 10p (basic) and 10p (extras) plus an I was asked to type — 50p (and the phone number for inquiries is 01 208-5332).

We also offer a range of full time and part time courses in electronics including C&D 224 Electronic Servicing evening classes.

D. Hedford
Senior Technology Lecturer
Hendon College
London Borough of Barnet

Basic09 print alarm

THANKS for printing my article *Basic09* (Quintus) rather than reproducing it as probably the vagaries of my pen. I think it would be helpful if you paid the following.

REMARK (June 1985) can be used a simple program as an example of a standard device. If anyone had a go at writing it they should be awarded the

undecore which connects printer link did not reproduce clearly in ODS variable names can be pretty long, but no spaces can be left in them.

Perhaps this short note will prevent a few queries.

Also in the final column of the article the instruction 'Tendipens' should look like 'Tendipens' — the space is essential.

Best wishes to you and OU under the new management.

David Rotney
1 Heath Road
Glossop
SCT2 6LR

THANKS David. Your letter was quite alright, apart from being late, and although we always ask the printers to make the letters as contrasted as possible in that case still very fine details, like the hole on commas, tend to bleed out.

In fact, the undecore do show in 50% of the lines, but it is possible that they could be overlooked and your warning is timely.

I hope that the undecore in your letter above is reproduced correctly — but owing to the vagaries of typesetting, undecore frequently get lost, an annoyance to people who write about hangups in file ODS-08-01 Superbasic. It did get lost, we had to put it in specially.

Dragons A1 service

A few years ago when I became something of an in converter to share my BBC with my son, we decided to purchase a computer for him. At that point there was a particular good sale offer at Dixons on the Dragon and, as an excellent job had been done to hide the incoming future of Dragon Data, we were obviously not made aware of the problems in store and were ahead with the purchase.

As it turned out, the problems were not so disastrous after all but thanks almost solely to Dragon User, the subscription to it immediately which was to become our lifeline and, had it not been

for Dragon User we would have changed to another computer ages ago. The real problem of course was the lack of suppliers for both hardware and software. It was a long time before we realised that by far the easiest way to get software and hardware was by mail order from people inventing in OU. After purchasing the initial gear, we decided to add a word processor and this was followed some time later (with encouragement by him) by a word processor.

Since my son (like his elder brother — a chief programmer) was interested in computers as a career, about 18 months ago we decided to extend his facilities by having an upgrade from 20 to 64. For this we contacted Compuserve. They did a first class job and, considering it was Christmas, in very good time.

My son had to be in April and we agreed to purchase a monitor for his birthday as he had been using his television until then. I thought first that it might be more convenient to buy one locally and avoid the necessity of delivery costs but, as to be expected, when I approached the computer shops in Leicester, they did not want to trade about the Dragon with someone like 'Can' get you anything for the Dragon. There isn't one for the Dragon and all the rest I should have known better by now so I went back to the helpful Compuserve with dramatic results.

I phoned them on Monday March 2nd to check their prices and availability and this gave me the surprise. They said they would have to order one as they did not actually stock them and the price they quoted was exactly the same as twelve months previously.

I got a cheque in the post on Tuesday March 22nd and the monitor was delivered to my door at lunch time Thursday March 24th. The monitor came direct from the manufacturers and the cable connection was perfect. The value is used on Friday March 25th. This has to be the most efficient service I have ever experienced and I felt I simply had to write to tell you. If the pathetic British postal service ever got public I pay it a someone like Compuserve that takes over.

P. Brockhouse
1 Park Avenue
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One to three and climbing

Program: *Descent* (two disc version)

Supplier: Pobox Software, 36 Fochell, High Compton, Great Ockham, DJ2 7NP

Price: £8.99 the set

WELL, you adventure players, here it is, there is one disc for you to review. The first disc is *Descent*, a maze-type adventure. The locations of the maze is an alien spaceship which has entered the galaxy and seems to be here to destroy the earth. The object of the game is to eliminate alien machines and to get out alive. The game seems with the player being interpreted into a trap bay in the alien ship. As the adventure is played in real time, after you have discovered the maze, you must report from another location in a pitfall which gives you a jump you in each section. You can of course, realize if you have the keys, otherwise you are stuck. If it happens and you cannot find it, a solid ten you may as well stop the game, as not start again. (How you find standing on a cliff?) — (2)

Having described the game I found it a little frustrating because despite being told that the game was simple, the screen images took long for my personal taste in design and to get on or on through my anticipated solution the wall seemed impenetrable although in actual fact it was only a stone.

The overall impression of the adventure is a one of a good game but along points it would be improved if it was a more and quicker as the pressing of the enter button continually increases the sense of waiting for the game. The game's display would have been enhanced if changes in colour had been introduced. The black, yellow and white areas give every appearance of being dreary although the game is not.

The second game, *Dungeon Descent*, devised by Tim Hogg and written by Jonathan Cartwright, is a rather impressive sort of *Start-Up Descent*. It is a role adventure maze but the graphics are far superior and

the adventure itself also contains very favourable although there is a lot to be said in the later case which for me did not make the display. Any attempt to pass the shifting resulted in a negative response from the computer. You can't, that has seemed a logical response and the continuing display of what now on before me? greeted after several operations like most forms of self which are only sure if they come at a surprise.

Notwithstanding these minor criticisms, I nevertheless strongly enjoyed this adventure and it is not only £3.99 to spend in total, these are rather than *Descent*.

The third game is *Whiffles Descent* which for me was the best. However, when I had the disc I thought this was a bit corrupted because I made the mistake of loading without sound. The screen display had no follow-up to the disc and looking around to happen. I thought with sound and the computer played it back to

almost 90 seconds before it actually loaded — however, one criticism of the earlier games was overcome, it did auto run. Once commencing the game I found that I had been told it about on there, that without warning, but at times it gave me another game immediately into the second game after trying the usual commands like enter, etc. etc. for reasons I could not find, which told me, among other things to be prepared for anything and one certainly must. The second game lasted longer — just if you enjoy your frustration, this game is definitely for you.

Overall I enjoyed the disc and in terms of hours at the keyboard it is very good value. The fact that these games are set in the same time before and the development of the programs can be seen in the game. For those who specialise in adventures, these may be of value but for others it is a certainly worth a try.

Richard Newman



A word could tell a thousand pictures

Program: *Picture Maker*

Supplier: Jura Pencil Software, Price 15

I hesitated to take another look at *Picture Maker* after Gordon Lee complained that the instructions were difficult to find and use. Well, unfortunately for Gordon, the author (myself) cannot with Gordon Lee on many points. The instructions, which are the only pictures, are on two sheets of A4 paper in 1.25pt type in a serif sans-serif typeface. It is easy to read. I ran the instructions from the program (where they are available) through my printer and received the same information. Now, what the screen display results.

The whole object of a word in instructions is to allow the ability to be understood, not only put the necessary commands and produce the object for the activity. *Picture*

Maker The problem is that the program is extremely sophisticated and the fact that it has a lot of pictures to give a lot of pictures to the user. The program is a very simple computer one with a facility that to give a lot of pictures to the user. The two pages of instructions, although detailed, are not comprehensive nor easy to read. There have been other utility programs in the past creating graphics screen displays. One that springs to mind is *Graphic Writer* by R. K. Smith, which can be found in *Practical 3* for 4 and is a sophisticated one. *Picture Maker* has a lot of pictures with a fourteen page instruction booklet which is single easy to follow. The instructions are logical and sequential. *Picture Maker* which can be used to create

and add graphics shapes in modes 3 and 4, contains the equivalent of five pages of the *Picture Maker* instructions, complete with an example.

I would agree that David has put a very good deal into *Picture Maker* but a lot of it is not needed and used to its full because of the instructions that the user will find it difficult to follow which is not the case.

However, I was impressed with the functions of the program itself. The ability to move areas about to delete and replace and indeed even to stretch stored areas horizontally or vertically is all there. Attention is automatically re-numbered and you can store up to eight different areas at a time depending on their size which tends to be re-numbered in attempting to stretch an area, because obviously if the resulting area is

then the background or fill might areas have been used, there will be no further room and the program will ignore the function.

A most impressive command is the M for magnify which magnifies the area under the cursor position on the screen. The magnification is magnified on a 10% level, which means the size of the area magnified (not the magnification itself) can then be enlarged by a simple key depression and the magnification is then updated even when not in use, which allows the speed of movement to be controlled. To couple of these functions is a true picture maker which will draw lines colour in a foreground colour from the cursor position at a border in the background.

Continued on page 11

64K in two 32K pages

PD Smith consults Motorola about the real SAM

I have written this article to complete information on the SPYBUGS (MC6800) seen and given by Matthew Lodge in the August '82 issue of Dragon User. In recent e-mail Lodge says that he doesn't know what the core register is SPYBUGSFF00 does. I have just received the MC6800 data sheet from Motorola and this clarifies the use of that register.

The register referred to as Address you to use the 68K can be a 68000 computer bus as Dragon 84, as two separate 32K pages addressed from 0000 to 07FF in fact what is going is that, in map type 0 (ROM) is (0000-07FF) the 476 bit of the ram addresses is replaced by the P bit from the P. To access the P is read from the P, any access to the ram will access the current byte. For instance if you access byte 10000 you will use byte 10000 of the ram. However if P is set equal to one then any access to the ram will access the byte in the second 32K page, in accessing byte 10000 will in fact use byte 10768 (10000+0768). This is really quite difficult to explain and is best understood by some explanation.

P is altered by accessing core register P, access to core register P is set by P, you then POK address 0768 with any value. To read P, you must POK address 0768 with any value.

Check the mode

There are several things to note about this 16K paged mode and only work from the map type 0, that is, the 32K mode of the Dragon 84. If the paged mode will only work if you have 64K, as your computer if you only have 32K the P bit will have no effect. Also that address is not used if you set the P bit without preparation the computer will immediately crash (as some of you will have found out by now). This is because the computer will still be generating interrupts which you can't handle, and the Basic interpreter gives vectors in ram. Because these vectors have suddenly disappeared the computer will undoubtedly crash.

The first program is the answer to the problem of the computer crashing. This copies the whole of ram into the second ram page, so that when the pages are swapped, Basic will continue as if nothing has happened. Note that the contents of 0768 to 07FF cannot be copied into 0768 to 07FF as these latter addresses are redirected by the core to I/O. The ram and the interrupt vectors. However the core does 0768 to 07FF can be accessed as you are in the new page of memory.

Before you set setting you must have set the top of memory to less than 0768 otherwise the system stack will overflow and the computer will crash. To test the paging system you must read the P bit by POK 0768.

```

2700 *PROGRAM 1
2700
2700 *COPY RAM (00000-07FF) TO
2700 *RAM (00000-07FF)
2700
2700 *NOTE - CANNOT COPY TO RAM
2700 *0768 TO 07FF AS THIS IS
2700 *USED FOR I/O, RAM AND VECTORS
2700
2700 3401 SCOPED POK CC
2700 1400 ORCC #050 SELECT RAM
2700 7700 POK POK
2700 0000 LDX #0
2700 0000 LDY #0000
2700
2700 EOB1 COPYL LDO ,Y++
2700 EOB1 STD ,Y++
2700 00768 ORCC #0768
2700 00768 BNE COPYL
2700
2700 7700 CLR #768 (SELECT RAM
2700 7700 POK CC,PC
2700

```

```

10 * BASIC PROGRAM 1
20 CLEAR 200,40768
30 FOR I=3872 TO 3872+27
40 READ A$
50 A=VAL ("0"+A$)
60 CS=CS+A
70 POK 1,A
80 NEXT
90 IF CS<3293 THEN PRINT "ERROR IN DATA":
    SOUND 10,10:END
100 PRINT "DATA OK"
110 EXEC 3872
120 DATA 34,01,1A,50,77,FF,0F,0E
130 DATA 00,00,10,0E,00,00,EC,01
140 DATA ED,A1,0C,7F,00,2A,F7,7F
150 DATA FF,0E,35,01

```

```

BASIC PROGRAM 2
10 POK #0768,0
20 GOTO 20

```

The computer will now appear to have crashed, but if you try a sound command such as SOUND 11, you will hear a beep showing that the computer is still working.

The reason that nothing appears on the screen is that the core is still displaying 1074 (0000) the text screen while Basic is writing to 32768 (3872) (but still knows that it is writing to 1074-1076). In theory the problem can be solved by telling core to display the correct address, by setting

P0 (see table on p. 10). This will work but not for very long as Basic will instantly reset it when the next character is to be printed.

To see then it can be done, by typing in Basic listing two, this will be as to be done, but it is at least enough to be done. When you run this, you will see all the text that you have entered in your basic when you thought the computer had crashed. Now if you press 0768 (the computer will reset to 1074-1076). (A useful note here: Basic does not reset the text screen when it is run, just reset the display, so, Basic can't really use it in this mode.)

If you now read the P bit by POK 0768, you will see that the screen is working again. Also note that program has

Hard but not too hard

Roger Merrick links OS-8 and a hard disc drive to the Dragon.

WHEN I previously wrote about my impressions of *Stylograph*, I shared some of my frustration on using OS-8 on the Dragon. My criticisms were not intended to be taken to imply dissatisfaction with OS-8 or the Dragon, but rather a combination of the two. Having worked with it now for some years, but not claiming by any means to be an expert, I think OS-8 is a wonderful operating system, but using it on the Dragon has frustrated a number of people. Merit that I find very irritating.

Floppy discs

I suppose I should be grateful that OS-8 no longer uses single density drives and I should be thankful that I do not use a CoCo with only 35 tracks per disc. I do recognize that back in the good old days of 1983, a single-sided 40 track was the most cost-effective solution to providing a floppy disc system for the Dragon, but I have created enough that nobody even made it clear that two drives were really essential for OS-8. Of course, Dragon Data had some internal misadventure about the release of OS-8 and it was fortunate that they got the OS-8 software released before the catastrophe. That was in fact the last benevolent act of a shrewd computer company who really did expect to earn back their customers (and this has probably been repaid by the fact that we are still here five years later). I have been told that Microsoft have taken over the license fee from Dragon Data for the OS-8 software so there were no legitimate issues for its ensuing release. It is regretted that Microsoft are also being terminated.

However, whilst being so lenient to me, I feel the standard double density single-sided floppy drive does not provide enough space to store a reasonable set of commands: an application and a data file on the same disc. Single drive operation is extremely time consuming, requiring modules to be loaded in memory, data directory to be changed, etc. Working discs require preparation and construction; customized BOOT discs using OS-8/OS-9 on a single drive system is difficult.

One simple solution is to add a second drive. If this drive matches the original then online storage is doubled. The original Dragon Data release of OS-8 only supported the single-sided 40-track format. V2 files, however, includes other device descriptions and drives will support double-sided and 80 track formats as well. A double-sided 80 track drive quadruples online storage, offering 768kbytes per disc. But floppy disc operation on OS-8 is still unsatisfactory — the type-ahead buffer stops working while the disc is being accessed. At first, I took this to be poor

software writing in the driver drivers, but now I come to see it as a problem with the hardware. Also, maintaining a reasonable amount of workspace means a large few modules permanently resident in memory as possible. This explains an open source characteristic for true word drawback.) of OS-8 — the time spent accessing discs to load modules.

Having seen friends and colleagues with PCs, using hard disc systems that provided megabytes of fast online storage, and aware, I thought, well, the answer to the problems of OS-8 on the Dragon is to add a hard disc. The operating system is sophisticated enough to handle it. Then you could have all your commands and data on discs available in a few seconds. OK?

Knowing nothing about hardware constraints, I searched for a supplier located over the 'off the peg' systems available for the CoCo in America and I stumbled at the cost of bringing one over (with no guarantee that it would work on the Dragon). Consequently at one time I passed up to have one planned. However, their plans for establishing the DSI at CES were not the best thing I have seen. It might have been hoped, and they also joined the project. People would not be prepared to pay the cost of such a system, or they told me. So at least IBSO show at the International Hotel, I asked Martin Vernon if he knew anyone who could do a hard disc interface. Dragon Data's name came up and some time later I contacted him.

Hard disc system

The hardware system consists of the following components: the dragon interface board, hard disc controller board, power supply and hard disc driving software. There is a small interface board built inside the Dragon, mounted on the shoulder of the lower casing, above the reset button. This board contains four components and is connected to the Dragon by several connections. A 50-way cable leads out of the board to a hard disc controller board (from an IBM compatible) in the next section. The board mounted in the Dragon is very simple. The connections to the Dragon go to a more complex card.

But this is where Dragon specific hardware starts. Dragon will provide the hardware and power supply as the customer can provide their own. If you intend purchasing a hard disc, understand you have the responsibility of entering the number of heads, power consumption (ask to look up your line and charged dealer map. If buying a second hard drive, be careful in choosing. See my writing, or don't pay much for it. You can't do any maintenance on a hard disc the way you can with a floppy drive. In my

case, I had acquired a 10-megabyte Seagate half height drive. It is the same size as a half height floppy drive. I had as predicted, be able to run it from the floppy power supply, but the starting current load of 3.5 amps was too much. So I required a more powerful (washed) major type of power supply. Generally speaking, this type of supply is essential, what they are expensive, so budget for it. A new one might cost £50.

The Dragon interface board includes a separate chip and data transfer takes place at two million bytes per second. MFM/0 is possible. Therefore, with appropriate software, for the hard disc system to be used by files, OS-8 and native Dragon/OS-8 software. Gordon only supplies OS-8 drivers. He tells me I asked him to an extent that only under a sophisticated system such as OS-8 is it worth using a device such as a hard disc.

Set up

Having had the interface installed, and purchased the controller card and power supply, I was anxious to get up and running. The first thing to do is format the hard disc. A utility disc of OS-8 modules is provided. Because of the way the BOOT command works in Dragon/OS-8, it is unfortunately necessary to BOOT from floppy to format what I call the 'native OS-8 version 2.4' module to operate OS-8 system, granted that.

Having seen friends and colleagues using hard disc systems that provide megabytes of fast online storage, I thought, well, the answer to OS-8 problems...

Using MCR from my standard system, I had showed the generator of the device description (see HDISK and FDI), in addition to OS-8 and OS-9. The 'E' option showed HDISK's size as approximately equivalent to the OS-8 module.

It was then necessary to format the hard disc. The FORNAT module on the utility disc is totally different from the standard system module. I ask for information about the hard disc — number of surfaces (the side) and sectors. This information must

But in future, any improved data could in theory be used to fine-tune the model.

A further price phenomenon is required as the so-called interference factor. This refers to the fact that physically connected bearers may not have consecutive numbers assigned by the system. This is due to the fact that in a time interval the system is loaded and used a sector, the spacing class increased by 20. If the system is not used in

The **EDS** screen will display contents of the floppy distributed on 4-14 of *Spynote* and is transferred to the hard disk directory **SPYLOG**. When using the **SPYLOG** program, a file can be constructed with the **GUILO** command, or text editor to **EDIFY** over from the master **CMCS** directory to the **SPYLOG** **CMCS** subdirectory any additional commands that may be required. Once a profile to hire the director active organization around a file's purpose rather than to assign him to work on household accounts like **CHIR** to a directory of **HOUSEHOLD ACCOUNTS** rather than **DYNAMICAL** which is a future task.

I chose to convert a master CD-ROM directory from the Spanish disc and a number of developers representing each floppy disc. The I subsequently stored on the hard disc (by CD-ROM) — one for MACROB, one for STYLUS etc. My CD-ROM now does it speed hierarchically under a number of DISC/CD-ROMS.

Flatten(bearing) tells whether it is linked to 354 characters (keycode buffer length) and it reduces opportunity for attacks when directory names are not preserved. Another point to bear in mind is that only one file with a given filename may exist in the directory, so if GNOME encounters a module with a given name in a directory, a method against module being loaded in that path will not be started. GNOME will report an error if it fails and carry on. The user should like a mechanism reverse the module loaded (update) module and load the module from before.

If the physically consecutive scenes were back in position, time would flow from left to right. More efficient to read the system than is under the first is the time. Setting the intermediate faces obviously requires detailed knowledge about the spatial organization of the system. This is not available to track the default values, making a mental note by the different intermediate faces in subsequent formal systems. Therefore the operator must choose logical or physical format. The former is equivalent to formal without vary whereas the latter will vary and look at any available traces.

Not until you install the physical option is selected. Although the formatting process will be much faster for a floppy system with as many sectors to format as a considerable period of time is taken. The quarter-hour play will be the system during this time on any other media format. After a complete 15-minute period of time (15 minutes) the disk is formatted and the generated FDISK partition with the satisfactory name: HD00000000. The next step is to install of OS-2 programs to the hard disk.

References

As design moved the hierarchical directory system, preliminary thought should be given to the data structure. Obviously, one may choose to have one master CIMS directory full of comments, probably containing a number of subdirectories or set up a subdirectory for each application or even for design type. For example, one could have design CIMS subdirectories.

This latter approach involves some duplication of films, but may be easier to use. Consider a director, called *STYLUS*, using

Five track access jacks are ingeniously hard-wired into each of the floppy-disk modules as standard into memory, and files are saved from memory, and much faster and better than that with a floppy.

Die neue

Secondly, with all commands and applications on-line and accessible via CHX there is no time spent swapping disks. For example, in `CHX` I can report up, load a previously built file to call `DISKIO` and customize `STYL` and the floppy device description, load `STYL`, recompile a C program, save, and compile it, go back to `STYL`, construct a BASIC600 program which calls the C module.

The aspect of which modules are loaded via internal drivers that the storage device is, should be an extension to this. This is how the disk limitation can be overcome. Regular use of OS/2 grows into a different perspective on my first computer. My Oregon became a terminal to an old text OS/2 computer. How extensive the test of the OS/2 computer takes on a more definite form. Since the test disk system, by taking so much on the storage, quite the responsibility penetrates my OS/2 system; the peripheral device plays an essential role.

There are always "if-then's." The importance of the head disc to my system is also proportional to its fragility. I've been running the system for approximately one year now. But I've never undertaken it before because I have suffered problems with it. It has also gone down since booting up, a difficult and time-consuming problem. I ended up not doing it and when the system crashed, I lost all of my work.

pile coming up, head sticks in, then more spilling then stacking up, flipped and the course corrects. Scientifically, more distance was covered as the large amount of work capable of being done. However, the principle that the less weight you don't use always the hardest to restore is equally true of both bodies, says your Editor with a leading 1.

I have performed some benchmark tests on the performance of the HIDEARCHONING image combination, and they were a mix of respectable results (compared with current machinery) and some good results. Gladwin has rewritten the driver so I intend to wait and report on the performance of the new version.

A number of people, users at other companies, have looked at *Address* where I have described the system. Why, they say, would you want to use a powerful terminal only to call a humble machine like a *Design*? This displays a lack of understanding of the power of OS-9, and the different approach to computing given by the combination of powerful operating system and hardware.

The total cost of about \$250 — \$300 may seem a lot of money, but if you're one who'll have a significant investment in your car and a powerful split-plate of safety

Dragon Invoicer

Crain Henderson plots a retrospective future

IF you have a printer to go with your Dragon, have you ever wondered how much more you could use it and improve on the productivity of your work?

As lately I have been keeping a much closer eye on my income and outgoings, Jorda and I did, getting into a good habit for when I leave school. I have written this income-expenditure compila- print out - edd save and find all appropriate information. You can use it to keep a careful watch on your money.

When you first describe the incident, compare the facts known and the suspected facts you believe. If you are involved in a lawsuit, you will need to know whether it is a lawsuit involving issues of substance. Part 1 (1) of the proceedings of your early in part (1) the proceedings through to explain what to do next by also and when the answer is needed you will go into the main part of the trial. You will need to know that the answer is

160 is the main menu you will have the choice of pressing (1) will send a current invoice to the printer as shown in figure one. The printer will set up for an 80 column printer but this can be changed by going location 160 in line 6 to the printer width and setting 750 to change 160 divided by 4 (your PCRS 160, 4000/160) and changing the number 2500/7671 to contain the appropriate address (25). Pressing (2) will take you into the DATA INVOICE mode. In this mode you will be asked (enter a) for an appropriate invoice number based on an amount.

The screen will clear and the question letters won't flash. The "TEST" will go

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

```

8      CLEAR STRING SPACE
9      --
10     -- SAVE PRINT WIDTHS
11     --
12     -- SAVE FOR DATE OF THE WEEK
13     --
14     -- SAVE FOR NUMBER OF THE YEAR
15     --
16     -- PRINT TITLE PAGE
17     --
18     CALL READ AND SELECTOR ROUTINE
19     CALL SELECTOR ROUTINE FOR READ, HOST MACHINE
20     --
21     -- LOAD INVOICE OR CASHITE
22     --
23     -- PRINT INVOICE TO PRINTER ROUTINE
24     --
25     -- ENTER INVOICE FROM KEYBOARD ROUTINE
26     --
27     -- HAVE INVOICE TO CASHITE ROUTINE
28     --
29     -- ENTER INVOICE ROUTINE
30     --
31     -- GET FROM READ ROUTINE FOR SECTION DATA
32     --

```

W **E** **S**

#1	=	NUMBER OF ENTRIES
#2	=	NUMBER OF DATA LINES
#3	=	POSITION OF MONTH
#4	=	SECOND DATE
#5	=	THIRD DATE
DATE1-5	=	DAY OF CURRENT ENTRY
MONTH1-5	=	MONTH OF CURRENT ENTRY
DATE1-10	=	DATE OF CURRENT ENTRY
DATE1-11	=	YEAR OF CURRENT ENTRY
DATE1-12	=	NUMBER OF VALUES IN CURRENT DATA LINE
DATE1-13	=	NUMBER OF VALUES IN CURRENT DATA LINE
DATE1-14	=	TOTAL PER VALUES IN CURRENT DATA LINE
DATE1-15	=	ADDITIONAL INFORMATION

[illegible][illegible]

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	2008年 12月31日	2008年12月31日 2007年12月31日	2007年 12月31日	2007年 12月31日
流动资产合计	1,000,000	1,000,000	1,000,000	1,000,000
非流动资产合计	1,000,000	1,000,000	1,000,000	1,000,000
资产总计	2,000,000	2,000,000	2,000,000	2,000,000
流动负债合计	1,000,000	1,000,000	1,000,000	1,000,000
非流动负债合计	1,000,000	1,000,000	1,000,000	1,000,000
负债总计	2,000,000	2,000,000	2,000,000	2,000,000
所有者权益合计	1,000,000	1,000,000	1,000,000	1,000,000
负债和所有者权益总计	2,000,000	2,000,000	2,000,000	2,000,000

04	WHEEL/TRAFF	0	01	00	BACH	0	0000	00
05	WHEEL/TRAFF	0	02	00	BACH	0	0010	00
06	WHEEL/TRAFF	0	03	00	BACH	0	0000	00
					TOTAL		0010	00

near Congressmen voted to ban laws of local law enforcement entities from being used as

DATE: 11/11/2011 TIME: 11:40 AM

The prompt for a title is read and then is followed by a prompt for the month(s) of year. Then the date that you began work followed by the date that you moved from work. When you have done this, the screen will clear again and the title of the record will be displayed at the top of the screen. Following by the entry number and the prompt ENTER DOZ. This is the day(s) the entry number which is displayed. If you click enter a valid day(s) the entry will be printed. When you have done this, you will be asked to enter the month and year again. You enter an invalid month you will be told. Now enter the date and the amount. Do the amount, if you just enter the figure a hash (#) will be displayed in front of it later on if you provide the figure on a hash (#) screen. If you do OK.

Once you have done this for all the entries, you will now display as figures two. You fill this in using keys 0-9 for the figures and the left and right arrow keys for moving. If you need to enter a 0, don't

1. **Author:** [Name]
2. **Title:** [Title]
3. **Journal:** [Journal]
4. **Volume:** [Volume]
5. **Issue:** [Issue]
6. **Page:** [Page]
7. **Year:** [Year]
8. **DOI:** [DOI]
9. **URL:** [URL]
10. **Accessed:** [Accessed]

number in a 3-digit space or a 1-digit number in a 2-digit space, then start numbers with a 0 (five-pence column) or be left blank. It's still a good idea to fill a 10 pence cell.

When you have finished, another prompt is THIS INFORMATION CORRECTLY appears. Answer (Y) or (N) correspondingly to (M) then your program's tests start. If (Y) you will proceed to the next answer.

DO YOU WISH TO ENTER ANOTHER
RECORDS? IF YES, EACH = 0
IF NO, 1

Downloaded At: 11:53 11 September 2009

(7) that you will provide with the necessary medical or dental care if (7)(i) you will go on to be (7)(ii) as well as an individual of means, or

Press (H) (T) (G) if no notes are required and you will return to the main menu. (If you have an existing message in memory which you don't want and you would like to enter another message, do not press (G) enter main menu, as this will re-boot the machine. To press (B) (H) (A) (G) and then (T) (G) and the messages will clear.)

Pressing (J) enters the save index mode. This saves the current index in memory to the cassette recorder instead of a file as you can see from the program, so be sure to insert the remote disk in the

casualty responder. You are able to position the cassette with the remote plug inserted because I have made use of the MTRIG and AUDIO commands within the software.

Feeding [4] enters the edit mode routes. Each piece of information we then wants to display followed by a question mark and a feeding code. If the piece of information is correct then press ENTER to pass on to the next. If the piece is incorrect then enter the corrected text and press [4].

Pressing (Y) will end the program, but when you press (Y) you will be asked if you are sure. If you are, then follow by (Y) and the program will end. Display the boot up message and the Basic program will be run. A summary of the data will be in memory.

If you accidentally exit the program (by pressing **CTRL-C**) or **RESET**, you can continue without losing the current page in memory by typing **GO TO 100** if you own a Dragon 84. Check the user reading instructions (see **FOCUS**) before then.

Although this is a (free) program, you may not learn the task of typing a word, and therefore I will be happy to supply a copy cassette for £2.50 including post and packing, or for £1.50 if you supply a D5 or D6 cassette. Send a cheque or postal order made payable to Greg Hinton to In-voice Software, Crag Mountain, Goring, 7 Woodbury Avenue, Wells Somerset BA8 2SD. Anyone who sends too little money will have the cheque returned without any refund. info@invo.co.uk

```

1 TITLE LOGO
2 F04E 155,54;F05E 153,54;F06E 15,54
10 ** INVOICE COMPILER **
20 DATA MONTH,1,4,6,8,10,12;MONTHS
30 DATA THURSDAY,FRI,SAT,SUNDAY
40 DATA 1,1,1,1,1,1,1,1,1,1,1,1
50 DATA JANUARY,FEBRUARY,MARCH
60 DATA APRIL,MAY,JUNE,JULY
70 DATA AUGUST,SEPTEMBER,OCTOBER
80 DATA NOVEMBER,DECEMBER
90 CLS
110 PRINT'*****
12 INVOICE COMPILER *****
13 *****
110 PRINT:PRINT'WOULD YOU LIKE TO LOAD AN INVOICE OFF INVENTORY
120 IF 1=1 THEN IF 1=1 THEN 120
130 IF 1=1 THEN 1000
140 IF 1=1 THEN 120
150 CLS
160 PRINT:PRINT'MAIN MENU
170 PRINT:PRINT'
180 PRINT:PRINT'1) PRINT INVOICE
190 PRINT:PRINT'2) ENTER INVOICE
210 PRINT:PRINT'3) SAVE INVOICE
220 PRINT:PRINT'4) EDIT INVOICE
230 PRINT:PRINT'5) QUIT PROG.
240 PRINT:PRINT' SELECT 1-5
250 IF 1=1 THEN IF 1=1 THEN 240
260 IF 1=1 THEN IF 1=1 THEN 240
270 IF 1=1 AND 1=1 THEN 2000,2010,150
280 IF 1=1 AND 1=1 THEN 2000,2010,150
290 IF 1=1 AND 1=1 THEN 100
300 ON 1 GOTO 2000,2010,2000,2000,100
310 IF 1=1 THEN
320 GOTO 150

```



```

2530 DIM SAVED,MM(12),D(12),A(12)
2540 M=0:S=1
2550 PRINT:LINE INPUT:PLEASE ENTER THE TITLE OF THIS INVOICE ";T4
2555 PRINT:LINE INPUT:PLEASE ENTER THE MONTH(S) OF THIS WORK ";M4
2560 PRINT:LINE INPUT:PLEASE ENTER THE DAY/MONTH/DATE WHICH YOU BEGAN WORK
";D4
2557 PRINT:LINE INPUT:PLEASE ENTER THE DAY/MONTH/DATE WHICH YOU RETIRED FRO
M WORK --> ";R4
2560 CLR:PRINT T4
2570 PRINT:PRINT:ENTRY NUMBER ";ID
2580 LINE INPUT:ENTER DAY ";D4:D=D
2590 H=0
2600 READ D4:IF D4=D4(D) THEN H=1
2605 IF H=0 AND D4="SUNDAY" THEN PRINT:INVALID DAY":RESTORE:GOTO 2580
2610 IF H=0 THEN 2650
2620 RESTORE
2630 LINE INPUT:ENTER MONTH ";MM:MM=D
2640 H=0
2650 FOR Q=1 TO 7:READS:NEXT:Q4=""
2660 READ D4:IF D4=MM(1) THEN H=1
2670 IF H=0 AND D4="DECEMBER" THEN PRINT:INVALID MONTH":RESTORE:GOTO 2630
2680 IF H=0 THEN 2650
2690 RESTORE
2700 LINE INPUT:ENTER DATE ";D4:D=D
2710 LINE INPUT:ENTER AMOUNT ";L4:L=L
2720 IF LEFT$(A4,D4+2)*" THEN A4(D4)=C+A4(D4)
2721 IF INSTR(A4,D4,".")>0 THEN A4(D4)=A4(D4)*.00":GOTO 2730
2722 IF INSTR(A4,D4,"")>0 THEN A4(D4)=A4(D4)*"":GOTO 2722
2730 D=D+1
2740 IF D=M THEN 2540
2741 H=1
2750 CLR
2760 PRINT"-- WEEKS/DAYS = C---,-- EACH":PRINT:PRINT=" C---,-- TOTAL"
2770 P=32:PRINTP," "
2780 D4=INKEY$:IF D4="T4" THEN 2780
2781 IF D4="CHR$(8) THEN 4000
2782 IF D4="CHR$(9) THEN 2800
2790 IF D4="0" OR D4="9" THEN 2780
2800 PRINTP=32,34:PRINTP," "":P=P+1
2810 IF P=44 THEN P=46
2811 IF P=54 THEN P=51
2812 IF P=63 THEN P=54
2813 IF P=54 THEN P=66
2814 IF P=102 THEN P=103
2815 IF P=105 THEN 2830
2819 PRINTP,""
2820 GOTO 2780
2830 PRINTP256,"IS THIS INFORMATION CORRECT "
2840 I4=INKEY$:IF I4="Y" THEN 2840
2850 IF I4="N" THEN 2900
2860 IF I4="N" THEN 2840
2870 PRINTP256,"":GOTO 2770
2900 PRINTP256,""
2901 L=L+24
2910 FOR Q=112 TO 121
2920 IF PEEK(L)=0P THEN MM(H)=MM(H)+C+R4(D4)+4)
2930 NEXT:MM(0)=VAL:MM(0)
2940 IF L=1024 THEN L=L+1:GOTO 2910
2950 L=1043
2961 FOR Q=112 TO 121
2962 IF PEEK(L)=0S THEN MM(H)=MM(H)+C+R4(D4)+4)
2963 NEXT:MM(0)=VAL:MM(0)
2964 IF L=1043 THEN L=1044:GOTO 2961
2965 IF L=1044 THEN MM(H)=MM(H)+".":L=1045:GOTO 2961
2966 IF L=1046 THEN L=1047:GOTO 2961
2967 L=1047

```

```

2908 FOR DP=12 TO 323
2909 IF PEEK(4140P) THEN TWOHD=TWOHD+CHRS(10P-41)
2911 NEXT TWOHD:VAL(TWOHD)
2912 IF L=1095 THEN L=L+1:GOTO 2908
2913 IF L=1096 THEN L=L+1:GOTO 2908
2914 IF L=1098 THEN L=L+2:TWOHD=TWOHD+ ",":GOTO 2908
2915 IF L=1095 THEN L=L+1:GOTO 2908
2916 IF H=1 THEN PRINTC24,"DO YOU WISH TO ENTER ANOTHER  -- WEEKS/DAYS
  @ C--,-- EACH  = @--,-- TOTAL ": ELSE GOTO 2969
2918 INPUTEYH:IF 1#EYH THEN 2916
2917 IF 1#EYH THEN H=H+1:GOTO 2908
2918 IF 1#EYH THEN 2916
2919 ELSE PRINT "-- WEEKS/DAYS @ C--,-- EACH  = @--,-- TOTAL":PRINT:PRINT
"ENTER ANY EXTRA LINE IF WISHED (ENTER) TO END = REMEMBER THE PRINTER HAS
  @ 80 CHARACTERS ACROSSED MAKE OF LAYOUT ")
2920 PRINT:PRINT:PRINT:LINE INPUT AM
2921 RETURN
2922 SAVE INVOICE
2923 FOR DP=0 TO 10:NEXT:GOTO 3020
3010 PRINT:PLEASE PLACE THE CASSETTE INTO THE CASSETTE RECORDER,SET IT TO
  RECORD: HIDE,CHECK THE VOLUME SETTING,INSERT REMOTE PLUG ANDPRESS A KEY
  (AUDITION:NOTEDOWN:3010 3404)
3010 CLS:PRINT:OFF:AUD:OFF
3010 CLS:PRINTC24,"PLEASE ENTER FILENAME TO BE  SAVED ":
3011 LINE INPUT P#
3012 OPEN "P",@-1,P#
3013 PRINTC-1,D,H,MM,SS,PP,TS,AM
3014 FOR DP=0 TO 0-1
3015 PRINTC-1,DR(1P),MM(1P),DT(1P),AM(1P)
3016 NEXT:FOR DP=1 TO H
3017 PRINTC-1,MM(1P),AM(1P),TS(1P),MM(1P),AM(1P),TH(1P),MIST
3018 CLOSE @-1:RETURN
3019 EDIT INVOICE
3020 PRINT"TITLE : ";T#
3021 INPUT @# IF @#="" THEN 3040
3022 T#=@#
3023 PRINT"MONTHS : ";M#
3024 INPUT @# IF @#="" THEN 3070
3025 M#=@#
3026 PRINT"REGAN : ";R#
3027 INPUT @# IF @#="" THEN 3090
3028 @#=@#
3029 PRINT"RETERED : ";R#
3030 INPUT @# IF @#="" THEN 3030
3031 @#=@#
3032 FOR DP=1 TO 0-1
3033 PRINT @#(1P):INPUT @# IF @#="" THEN 3060
3034 @#(1P)=@#
3035 PRINT @#(1P):INPUT @# IF @#="" THEN 3060
3036 @#(1P)=@#
3037 PRINT @#(1P):INPUT @# IF @#="" THEN 3060
3038 @#(1P)=@#
3039 PRINT @#(1P):INPUT @# IF @#="" THEN 3060
3040 @#(1P)=@#
3041 NEXT
3042 PRINT AM#:INPUT @# IF @#="" THEN 3020
3043 AM#=@#
3044 RETURN
3045 STOP
4000 PRINT@P," ";P=P-1
4010 IF P=102 THEN P=101
4020 IF P=99 THEN P=55
4030 IF P=53 THEN P=52
4040 IF P=50 THEN P=33
4050 IF P=1 THEN P=32
4060 PRINT@P," ";
  @-1:GOTO 3045

```


Colour connection

Ray Deakins makes a hardware mod to balance the Dragon's colour

THE December issue of *Dispositio Assensu* contained a letter asking if it is possible to correct the colour balance on a CD-R. The following short article might just help them, assuming that the writer of the letter has already tried adjusting the LUT (most power users do).

The C64 (and some of the later 320s) use a small-angle capacitor instead of the fixed value 10pF capacitor (C7 on the 320 — C22 on the 64). The value of this should be between 2 and 20 picofarads (Mouser part no. WL1988). The component is located on the main circuit board for left-hand side immediately below the crystal X1. If you are handy with a soldering iron, it's also

Take only long to make this modification. With the new capacitor in place and the computer switched on adjust the small screw with a non-magnetic insulated screwdriver until you get the best colour balance.

Changing this controller has improved the colour display on the two Dragons that I have modified in this way (both with issue 4 power boards and the Astek UMT081 modulator). The issue 4 power boards have the LM7805 modulator and a slightly different circuit. Although I have no idea why this should not work, I cannot guarantee that this will solve the problem and suggest that anybody experiencing

making the candidates should only go ahead if they are fully confident in their ability to do the job and reverse it if necessary.

The following sheet programs will help to adjust brightness. To use the program, follow the advantages. It is essential that your TV is set up correctly in colour balance and display time can be altered by changing the brightness.

The National Dragon Boat Racing Association (NDBRA) may be able to help with equipment requirements.

Incidentally, 1981 is the year of the Dowry-Dead in India, which was

```

10 CLAS=PRINT'BLACK'      110 CLAS=PRINT'GRAY'
20 FOR W=0 TO 1500 NEXT W 120 FOR W=0 TO 1500 NEXT W
30 CLAS=PRINT'GREEN'      130 CLAS=PRINT'GRAY'
40 FOR W=0 TO 1500 NEXT W 140 FOR W=0 TO 1500 NEXT W
50 CLAS=PRINT'YELLOW'     150 CLAS=PRINT'MAGENTA'
60 FOR W=0 TO 1500 NEXT W 160 FOR W=0 TO 1500 NEXT W
70 CLAS=PRINT'BLUE'       170 CLAS=PRINT'DEADBROWN'
80 FOR W=0 TO 1500 NEXT W 180 FOR W=0 TO 1500 NEXT W
90 CLAS=PRINT'RED'        190 GOTO 10
100 FOR W=0 TO 1500 NEXT W

```

11/11/2014 10:00 AM

```

2300 0=0:1:00000000:INPUT SIZE *100:000000
2400 00000000:PRINT NEW LINE * X *1:1:INPUT L, L1: L1, LPT: L= L, RPT: 00000000
2450 R1=1:00000000:PRINT NEW LINE *1:1:INPUT L, L1: R=00000011:00000000
2500 0=0:1:00000000:INPUT X-SHIFT *100:000000
2550 0=0:1:00000000:INPUT Y-SHIFT *100:000000
2600 0=0:1:00000000:INPUT NEW DOT GAP *100:000000
2650 PRINT L, R *1: L=NOT L: L1: RPL: THE PRINT *OFF: ELSE PRINT *ON*
2700 WAIT 1000:000000
2750 00000000:PCORRPT00:IF CORP700:IF CORP800:000000
2800 000000:100:PCORP0000:PCORP0000:IF CORP000:000000
2850 00000000:000000
2900 SCREEN,0:IF PWR00="* THEN040 ELSE SCREEN,0:000000
400 0=1:000000:PRINT0,0:R=NEW L0, L2:1:PRINT0:R=NEW L0, L2:1:000000
450 PRINT *CURRENT* *000000
460 PRINT *LOWEST* L1, R1: *UPPER* L1, R2: RETURN
1000 DATA SPACE- DIFFERENT PATTERN,0= CHANGE SIZE,0= NEW DOT GAP, L= CHANGE L,
R1= IN P1, X= CHANGE LENGTH, X= X-SHIFT * GOOD RIGHT, Y= Y-SHIFT * GOOD UP,
C= CLS GRAPH, I= LOAD IN STORED GRAPH,0= STORE GRAPH,0= HELP SCREEN
1010 DATA 0= STOP TO PRINT0, ANY OTHER KEY RESTART

```

Winners and Losers

Energy minister
Gordon Lee will
look at some price adjustments

TEB's strategy involves a differentiating effort to turn the February competition in May's Dragon-Boat Festival into a worldwide wave of awareness through the power of its media.

How easy is that? I know you ask 444, which gives of amusement. It being the concatenation of the one hundred digit product of two fifty digit numbers in a two-¹/₁₀ under 10 seconds—in fact, the existing on-tripatched time of under 4 1/2 seconds—reduced from the 226 seconds running time of the example given in the question.

The savings given are those found by averaging a number of trial runs. The seasonal climatic place may vary from run to run (or from machine to machine) but these savings should be typical from the savings given here. Note that the use of clearly spaced paper is recommended so that the background lines do not produce the parallax of the time taken used for the first and last command of each program respectively.

The method used by the three winners was most basically similar. This was to reduce the number of calculations to be made by splitting the two five-digit numbers into groups of 5 and 4 digits respectively, and then multiplying each of these groups into the other group being inserted in the answer along at the correct position. In this way the first five-digit number can be split into five digits and 4 digits, while the second number can be split into either four digits and 5, or into 5 and 4 digits. In this way the multiplication part of the computation can be done in just 136 steps. The Dragon can handle the multiplication of a five and four digit number into a nine-digit product with only 100 steps, and the number of steps is significantly reduced.

The senior Petri Parvay seems to do everything and compile the calculations half the time of his assistant. Once again, this was achieved by asking graduate students but the others were needed to compile

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As a broken-down and discarded car, the old car A is effectively broken down, and each part is recycled by the related party (A). These products are entered into error log Z. Only after the system can the carrier with Z calculated and the value of error Z corrected. Z is converted back to a string.

One interesting feature of these of the lineage is the use of a command which although acceptable on the Dragon, is not always possible on other machines. As far as I am aware, it is also a command which is not found in the manual supplied with the Dragon, although it is quite a useful one.

Source: *Handbook of International Migration*, 2000, by the
United Nations Development Programme.

JS = MESSAGE 4.35
which places in variable JS the three
characters from the AL keyboard as 4

203 and their distribution is shown in Table 1.

```

10 Ad = ABCDEFGH+LM. 20 = "XYZ"
20 MATH(Ad + 2) = 20
30 PRINT Ad

```

Quite predictably, this produces the not unexpected result of "ADDITIONAL", and yet this is a command that is not accepted by some versions of Basic.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

[illegible]

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```

1007 # 计算并返回两个字符串的公共子串长度
1008 def longestCommonSubstr(s1, s2):
1009     # 如果两个字符串都为空，则公共子串长度为0
1010     if not s1 or not s2:
1011         return 0
1012     # 创建二维数组，用于存储动态规划的结果
1013     dp = [[0] * (len(s2) + 1) for _ in range(len(s1) + 1)]
1014     # 遍历字符串s1和s2，计算公共子串长度
1015     for i in range(1, len(s1) + 1):
1016         for j in range(1, len(s2) + 1):
1017             if s1[i - 1] == s2[j - 1]:
1018                 dp[i][j] = dp[i - 1][j - 1] + 1
1019             else:
1020                 dp[i][j] = 0
1021     # 返回公共子串的最大长度
1022     return max(dp[i][j] for i in range(len(s1) + 1) for j in range(len(s2) + 1))
1023
1024 # 测试用例
1025 s1 = "abcde"
1026 s2 = "ace"
1027 result = longestCommonSubstr(s1, s2)
1028 print(result)  # 输出: 3

```

Downloaded At: 11:53 11 September 2009

[illegible]

1000

```

10  # 设置环境变量，防止出现乱码
11  export LANG=en_US.UTF-8
12  export LC_ALL=en_US.UTF-8
13  # 安装依赖包
14  apt-get install -y python3-pip python3-dev python3-setuptools python3-wheel
15  # 安装 Flask
16  pip3 install flask
17  # 安装 Werkzeug
18  pip3 install Werkzeug
19  # 安装 Jinja2
20  pip3 install Jinja2
21  # 安装 MarkupSafe
22  pip3 install MarkupSafe
23  # 安装 PyYAML
24  pip3 install PyYAML
25  # 安装 SQLAlchemy
26  pip3 install SQLAlchemy
27  # 安装 Mako
28  pip3 install Mako
29  # 安装 Gunicorn
30  pip3 install gunicorn
31  # 安装 Nginx
32  apt-get install -y nginx
33  # 安装 Redis
34  apt-get install -y redis
35  # 安装 Supervisor
36  apt-get install -y supervisor
37  # 安装 Celery
38  pip3 install Celery
39  # 安装 Kombu
40  pip3 install Kombu
41  # 安装 Amqp
42  pip3 install Amqp
43  # 安装 PyZmq
44  pip3 install PyZmq
45  # 安装 ZMQ
46  apt-get install -y libzmq3-dev
47  # 安装 PyZmq
48  pip3 install PyZmq
49  # 安装 ZMQ
50  apt-get install -y libzmq3-dev
51  # 安装 PyZmq
52  pip3 install PyZmq
53  # 安装 ZMQ
54  apt-get install -y libzmq3-dev
55  # 安装 PyZmq
56  pip3 install PyZmq
57  # 安装 ZMQ
58  apt-get install -y libzmq3-dev
59  # 安装 PyZmq
60  pip3 install PyZmq
61  # 安装 ZMQ
62  apt-get install -y libzmq3-dev
63  # 安装 PyZmq
64  pip3 install PyZmq
65  # 安装 ZMQ
66  apt-get install -y libzmq3-dev
67  # 安装 PyZmq
68  pip3 install PyZmq
69  # 安装 ZMQ
70  apt-get install -y libzmq3-dev
71  # 安装 PyZmq
72  pip3 install PyZmq
73  # 安装 ZMQ
74  apt-get install -y libzmq3-dev
75  # 安装 PyZmq
76  pip3 install PyZmq
77  # 安装 ZMQ
78  apt-get install -y libzmq3-dev
79  # 安装 PyZmq
80  pip3 install PyZmq
81  # 安装 ZMQ
82  apt-get install -y libzmq3-dev
83  # 安装 PyZmq
84  pip3 install PyZmq
85  # 安装 ZMQ
86  apt-get install -y libzmq3-dev
87  # 安装 PyZmq
88  pip3 install PyZmq
89  # 安装 ZMQ
90  apt-get install -y libzmq3-dev
91  # 安装 PyZmq
92  pip3 install PyZmq
93  # 安装 ZMQ
94  apt-get install -y libzmq3-dev
95  # 安装 PyZmq
96  pip3 install PyZmq
97  # 安装 ZMQ
98  apt-get install -y libzmq3-dev
99  # 安装 PyZmq
100 pip3 install PyZmq

```

Write: ADVENTURE

Pete Gemard rings changes on theme

I received an interesting letter recently from one Robert, "fighter in Kellogg's (Nokturne) videogame the Phantom, and we'll let it pass" wherever the money. I've been trying to write my own adventure recently, but haven't much idea what to do or how to go about doing it. He's developed a fairly reasonably perfect (quoting "take the large sword and dragon" as an example) but then ends up with a general plea for help and advice.

Since it occurred to me that a change of principle might be in a similar position to Robert (that of knowing the basics (and possibly basics) but not being quite sure how to go about putting it all together, we'll spend this month trying to help you all along a little.

Choose your system

Most people who write adventures either find or develop a system of their own and then bring everything into that, or they use an adventure writing system developed by someone else and have to find of all modify their own way of thinking so that the adventure they're conceptualizing will be able to be written by using that particular system. It's not an easy thing to do with an idea that allows you to swing from one character to another if the system in use isn't capable of coping with that.

So first of all choose the game you're going to be writing in a relatively well-entrenched language if you're going to be submitting a design rather than the finished story. Study other games by that company, and make sure that what you're sending them will fit in with what they have already done. Otherwise you'll get a rejection along the lines of "good idea, but our system wouldn't be able to handle it." Translated this means that they probably like the idea but are not well equipped for the time and energy in developing new systems to cope with whatever variants you've introduced. And why should they? For every adventure that would fit into their way of programming they've probably got half a dozen ideas that will.

For a simple and totally unoriginal example discuss the old age-old problem of trying to find it is again a locked door. Having found the key the player might reasonably be expected to go back to the door and type in something like "OPEN DOOR." A simple line of code like

```
IF key gained AND correct location AND door locked THEN unlock door
```

will suit everything out. Most adventure systems can be expected to cope with something like that, although it is a pity to a person of preference for more sophisticated writing games that have increasingly convoluted

of doors and hundreds of keys scattered about the place, forcing you to spend an eternity finding the right one for the right door. Then when you do and type in "OPEN DOOR" the program responds with "THE DOOR IS LOCKED. I know it is locked, that's why I've spent half an hour finding the key and am now telling you to open the wretched thing."

From little problems, mighty advents ensue and if you're going to have a locked door then there will be some just some long interesting detours so that the player gets some slight feeling of reward after opening it. Perhaps make it a double, or even a triple locked problem. The lock might be covered with a panel that is not a keyhole and several more, and when you do find some of it and then if you then discover that there is something stuck inside the barrel of the lock and you have to drop it out. A little subversion again an ancient problem makes all the difference to the plot.



Too many adventures, though, seem to rely on locking and unlocking things in order to succeed. Doors (which, of course, opens most of the games) that I've seen need something to be unlocked at some time or another as another of the opening youthfulness does might well be clever but looks altogether a little more like the game needs to evolve, but it will be a much more original.

And since originality seems to be the name of the game these days, leave out mazes at all. Most people to program through the maze, personally find them tedious in the extreme.

```
IF POPENING THEN OP-POPCORND GO TO 10
```

Something similar in which is added to get a player moving around, not outside of a maze, if the maze (P) contains the number of locations and the number of available exits. OP is the current location, and PD is the direction that the player

wants to go in. However moving around within a maze could easily be achieved by simply having a set of locations that all have the same location description such as "You are in a maze of twisting passages, all alike to turn the original. Then, whenever the player wants the local description, instead of the same old the player has no idea whether the maze has been advantageous or not. This sort of maze is entirely a way to avoid dropping objects and slowing your progress like that, if the objects still there when you move then you're in the same location. On the other hand the programmer can make things more difficult for the player by having something like this in the GROP routine:

```
IF (OP=48 AND OP=58) THEN GROP=0 PRINT message
```

This assumes that the maze is in locations 47 to 57 and the way 58 leads to the way 48 and a 0 object. Getting that level on to you would mean that the object had been destroyed, and the message would be something along the lines of "As you drop the object a globe appears in a pool at some distance, saying that he leaves it outside the maze for safe keeping. He vanishes in a puff of smoke." Thus the player can now no longer map the maze by dropping objects.

A logical maze

Whether or not you have a maze to do, it's up to you (I don't like them myself) but some people do actually seem to enjoy solving them. But if you have a maze, try and give it a purpose. So many old format mazes are better at being a test of being lost and being a success with no reason behind the sudden appearance of a maze in the middle of a novel. Make it a constructive maze (in London adventures might use "King of Clays" the instance) with something at the center of it, perhaps. Make it so that the player has to achieve something by solving a maze.

Another old chestnut which can be given a variation on at home is to get the building adventure game writer started in the perennial problem of light and dark. Many many games have you wandering around looking for a torch before you can go on to the next set of objectives, whatever you're able to see where you're going and the darkness is a little bit better consumed by a reasonable fire.

```
IF (OP=32 AND OP=48 AND PD=1) THEN PRINT message
```

The sort of line could easily be added to the movement routine with one command

39 being the dark ones! If the visible PD is set to 1 then the player has not found a light source, and the message could read something like this: "As you try to enter the dark you find that suddenly almost knowing yourself as you fall into a black pit. The last thing you see before you fall from where in the air the burning eyes, and glowering jaws of some unknown beast!" Peter seems happy!

Some adventures do allow you to roam about in the dark without falling down anywhere, but of course you control the events that might be hidden on the ground. This is wrong: everyone's eyes adapt to the dark eventually, so a solution might be to make the player stay in the dark level for a set number of moves before they can see the glowering monster lying far concealed behind a rock. Or you may even consider having a light source that goes out after a certain number of moves.

Then again, you might care to have something totally different. One adventur-

er misinterpreted a cave area that had to be explored, and there was also a trap. Unfortunately the trap didn't work, and never could work, as some other alternative had to be found! This alternative took the form of a guide dog, which would happily guide you through the caves and prevent your feet from stumbling in return for a spot of food. Added to this was the length of time taken in the power cell as the player steps adjusted slightly and were able to make out a set of tennis rackets in one corner of a particular cave. Tennis rackets? It was a strange advert was!

A troll's pint

One final point to consider in the beginner to the world is another feature that could easily be changed in order to add other elements. Imagine this: whenever a certain thing, such as a troll, looks at your pet it will not let you pet until you give him something.

P CP=48 AND OB(00)=OP THEN PRINT message

If the troll is blocking your path, and it's lost on an 45 then print a message to the effect that "The troll sneezes as you leave the other side of the rocky old bridge, and refuses to let you pass. You might try turning your bridge at least if you only to be lost." The troll doesn't let people playing with his bridge, and sneezes out the line before it can take hold.

Almost inevitably the time that you have to give the troll will be one that you want to use again later, so that the player will have to think of some way of getting it back afterwards. But you could do it the same sort of problem in a totally different way. You could make the troll let a drink or something, and when he collects the tavern and studies the door to see if any other trolls have been in he could find that there were no marks at the inn and so go elsewhere to find a drink. Making you plenty of time to study, across the bridge, if it was a rope bridge you could not a ladder after you and thus prevent the troll getting back across afterwards. All variations on a theme, and with that goodbye!



Professor Deedrock I see again, after last month's writings against people who should know better and we promised we have the old boy and his unique solution to an adventure that I get a number of enquiries about: namely Pyromaniacs of Doom! Thanks to Michael Edwards and H. Steadman for giving the good Professor a helping hand on those occasions when his feet stumbled slightly.

Dear Diary

Pyromaniacs and slashings (or is that slashings?) today from sound like some sort of regular murder, a band of slashings approaching the other band (see Cap'n) about an old lady I made about, and one cannot help but wonder what Bender would have made of a self. All pure is not to reason why and having felt the admirable courage behind (demon) enough egg, but does my value too hard to ensure that we old fogies have what the refers to as a 'good repute' I had the misfortune to stumble slightly and had to grab pole to keep my balance. Heaven preserve us, the pole was to fall a shove, and tamping that such an unpleasant might come in useful life as I kept



hold of the thing and went to a nearby pool. A curious dry and some liquid of a rather dubious nature from the cartoon soon came into my possession, and after travelling into said town, fairly there and again, I knew on the about to pay for bread and found myself digging.

I scratched a scratcher with my and after taking a very small whetstone I was digging with gusto on that smaller Deedrock would tell me that something of value might well be revealed hereabouts. A large hole was required to be precise, and upon going into it I found a door, door unlocked that I can tell you and immediately went and up again. There I dripped the shovel and took hold of a stone. Something about it caught my fancy, not very what. I unlocked the main door and went in, looking vaguely guilty as I did so, for no apparent reason. Perhaps it is that I am ashamed in most of us, of being caught, where we ought not to be. What would the count say? In a flash of moment I dropped both keys and in my haste, I was in the Pyromaniacs of Doom, and immediately took a seat before pressing on further. It would not do to be caught unawares.

